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| **Container Orchestration with Docker and Kubernetes**  **Installing Docker and Kubernetes Tools** |
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This Activity demonstrates the installation of Docker and Kubernetes (Using Minikube ) in CentOS 7 VM

# Walkthrough:

1. Install Docker
2. Install Minikube
3. Install kubectl tool
4. Create Docker Hub Account
5. Creating Docker Image and Push it to Docker Hub Account

## Part 1: Install Docker

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| 1 | Follow the below steps to install Docker in your Remote Machine  Switch to root user  **Command:**  sudo su - |
| 2 | Installing pre-requisite and docker tools  **Command:**  sudo yum install -y yum-utils device-mapper-persistent-data lvm2 vim  sudo yum-config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo  sudo yum update -y  sudo yum install -y docker-ce docker-ce-cli containerd.io  sudo mkdir /etc/docker  cat > /etc/docker/daemon.json <<EOF  {  "exec-opts": ["native.cgroupdriver=systemd"],  "log-driver": "json-file",  "log-opts": {  "max-size": "100m"  },  "storage-driver": "overlay2",  "storage-opts": [  "overlay2.override\_kernel\_check=true"  ]  }  EOF  mkdir -p /etc/systemd/system/docker.service.d  systemctl daemon-reload  systemctl enable docker  systemctl start docker  **Note: Installation will take approx. 10-15mins to complete.** |
| 3. | Verify the installation  systemctl status docker    sudo docker run hello-world    sudo docker images |

## Part 2: Install minikube

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| 1 | Follow the below steps to install minikube in your Remote Machine  Switch to root user  **Command:**  sudo su - |
| 2 | Installing pre-requisite and minikube tools  **Command:**  # Install Minikube  curl -Lo minikube https://storage.googleapis.com/minikube/releases/v1.22.0/minikube-linux-amd64  sudo chmod +x minikube  sudo mv minikube /usr/bin/  systemctl status firewalld  systemctl stop firewalld  systemctl disable firewalld  yum install conntrack -y      # Install crictl-tool  curl -L -O https://github.com/kubernetes-incubator/cri-tools/releases/download/v1.0.0-beta.0/crictl-v1.0.0-beta.0-linux-amd64.tar.gz  tar xvf crictl-v1.0.0-beta.0-linux-amd64.tar.gz  mv crictl /usr/bin/crictl    # Install cri-docker  VER=$(curl -s https://api.github.com/repos/Mirantis/cri-dockerd/releases/latest|grep tag\_name | cut -d '"' -f 4|sed 's/v//g')  echo $VER  wget https://github.com/Mirantis/cri-dockerd/releases/download/v${VER}/cri-dockerd-${VER}.amd64.tgz  tar xvf cri-dockerd-${VER}.amd64.tgz  sudo mv cri-dockerd/cri-dockerd /usr/local/bin/  cri-dockerd --version      # Create service cri-docker  wget https://raw.githubusercontent.com/Mirantis/cri-dockerd/master/packaging/systemd/cri-docker.service  wget https://raw.githubusercontent.com/Mirantis/cri-dockerd/master/packaging/systemd/cri-docker.socket  sudo mv cri-docker.socket cri-docker.service /etc/systemd/system/  sudo sed -i -e 's,/usr/bin/cri-dockerd,/usr/local/bin/cri-dockerd,' /etc/systemd/system/cri-docker.service  sudo systemctl daemon-reload  sudo systemctl enable cri-docker.service  sudo systemctl enable --now cri-docker.socket  sudo systemctl status cri-docker.socket        # Start minikube  minikube start --vm-driver=none |
| 3. | Verify the installation  # This command displays all the components that are deployed  minikube status |

## Part 3: Install kubectl

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| 1 | Follow the below steps to install kubectl in your Remote Machine  Switch to root user  **Command:**  sudo su - |
| 2 | Installing kubectl  **Command:**  curl -LO https://storage.googleapis.com/kubernetes-release/release/$(curl -s https://storage.googleapis.com/kubernetes-release/release/stable.txt)/bin/linux/amd64/kubectl  chmod +x ./kubectl  sudo mv ./kubectl /usr/local/bin/kubectl |
| 3. | Verify the installation  **Command:**  kubectl help |
| 4. | Check the Node Information  kubectl get node (Validate node name and your instances IP should be same) Part 4: Creating Docker Hub Account Go to: <https://hub.docker.com/>  Click on Register:    Give the details below:    And then click on Sign Up option. |

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